Amendment and Additions to
Snowfield Development Corporation's
Agreement Report (DAR)

Project No. 1740064.001

SEPTEMBER 2003

AMENDMENT AND ADDITIONS TO SNOWFIELD DEVELOPMENT CORPORATION'S DEVELOPER'S AGREEMENT REPORT (DAR)

Submitted To:

MACKENZIE VALLEY
ENVIRONMENTAL IMPACT REVIEW BOARD

Prepared by:

EBA ENGINEERING CONSULTANTS LTD.
YELLOWKNIFE, NORTHWEST TERRITORIES

Project No. 1740064.001

SEPTEMBER 2003

September 30, 2003

Vern Christenson, Executive Director
Mackenzie Valley Environmental Impact Review Board
Box 938, 5102-50th Avenue
Yellowknife, NT X1A 2N7

Attention: Mr. Vern Christenson

EA-03-006, letter dated August 26, 2003
Your File: Meeting of September 23, 2003 with Sherry Sian and Alan Ehrlich (MVEIR), Steve Moore (EBA), Mike Beauregard (Project Geologist) and Robert Paterson (President, Snowfield) present.

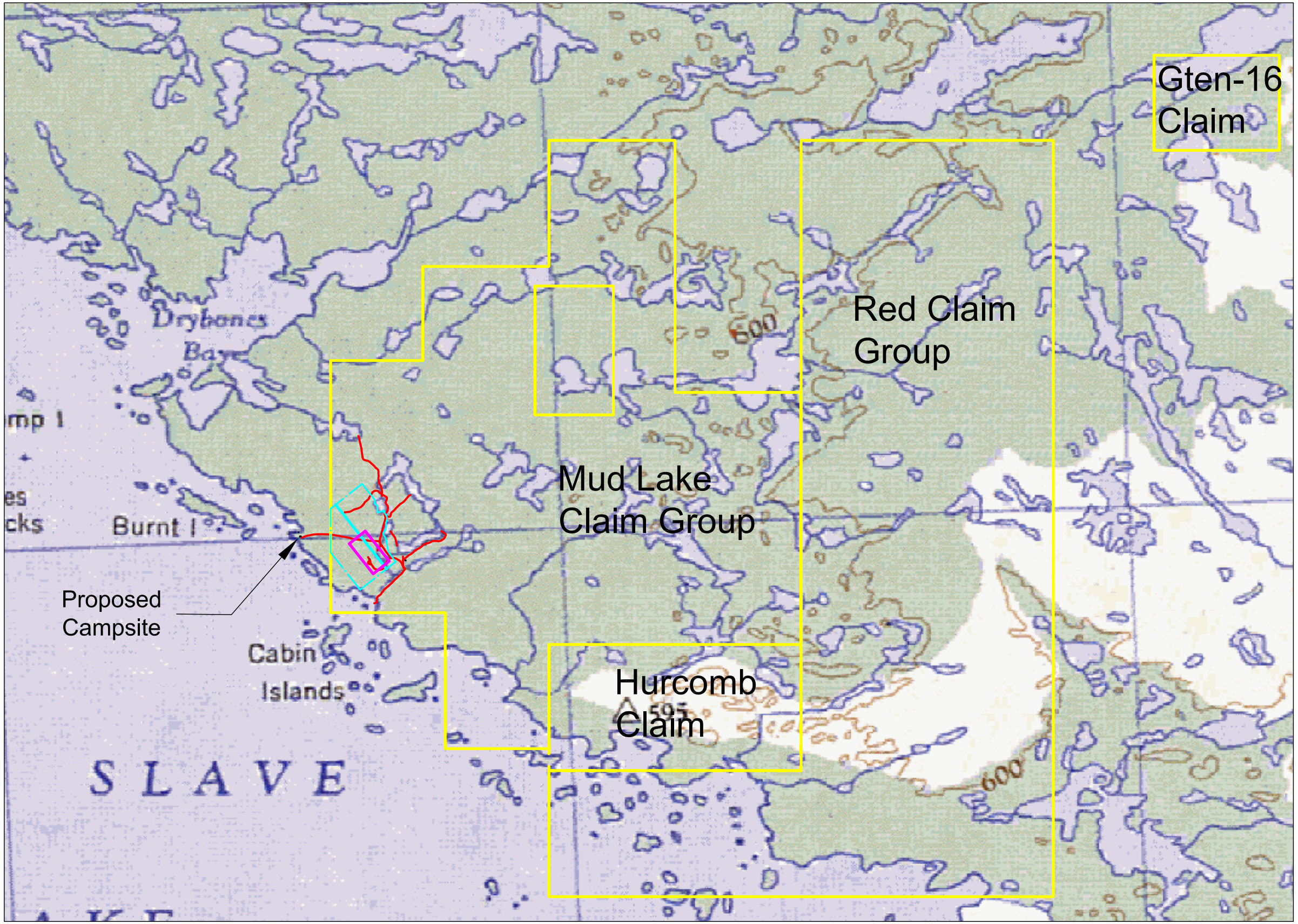
Subject: Amendment and Additions to Snowfield's Developer's Agreement Report

Please find enclosed, the submission of Snowfield Development Corp. ("Snowfield") with respect to additional information to be included in Snowfield's Deverloper's Assessment Report ("DAR") which we request be presented at your Board Meeting of September 30th, or as soon as conveniently possible thereafter. In this regard, I've called upon wildlife biologist/environmental scientist Steve M. Moore, B.E.S., B.A. of EBA Engineering Consultants Ltd. to address the Environmental Assessment and Cumulative Effects components and project geologist Mike Beauregard, B.Sc. to address operational questions. Mr. Moore's Cumulative Effects submission is attached hereto.

This letter addressing MVEIRB concerns of deficiency and scope of Snowfield Development Corp.'s DAR refers to the following dated documents:

Application for Land Use Permit, Snowfield Development Corp., MV2003C0023, dated June 12, 2003
Developer's Assessment Report, Snowfield Development Corp., Preliminary Exploration Program, MV2003C0023 Land Use Permit Application, dated August 2003.
L. Stephenson, Geofin Consulting Services, email dated August 30, 2003
Gartner Lee Limited, Draft Regional Cumulative Effects Study for Drybones Bay and Wool Bay, dated September 2003, reference GLL-23546, missing Sections 4.7 and 6.0

Snowfield Development Corp has had the good fortune to discover a near-surface kimberlite occurrence on its Mud Lake Claim Group (Figures 1, 2, 3). Several drill holes intersected significant widths of kimberlite while several other holes contain multiple intersections. Kimberlite occurs in four holes with a strike length of 75 metres. Drillcore intersections range



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Legend

UTM Zone 12 Nad 1927
NTS Mapsheet 85I/4

- Mud Lake Kimberlite Work Area
- Mud Lake Grid Baseline
- Mud Lake Grid Outline
- Claim Boundary
- Winter Trail

Scale 1:75000

Figure 1
Location Map

1740064.001 fig03.dwg

Figure 3: Mud Lake Kimberlite Work Area Detail

from 4.88 to 10.10 m in width, commencing at vertical depths ranging from 17.5 to 36.7 m below ground level. Mineral analyses of the drill core are yielding remarkable and encouraging results (news release, Appendix A). Highly anomalous counts of diamond indicator mineral grains in till down-ice of this area indicate that one or more kimberlite bodies reach surface.

For Land Use Permit purposes, Snowfield wishes to designate an area of interest, named the Mud Lake Kimberlite Work Area, within which the Land Use Permit Application's Stage I program of 20 holes would be conducted. Snowfield herein provides hitherto unreleased data of prior reconnaissance drilling (Drybones #4 Drill results, Appendix A). As part of its ongoing exploration of the Mud Lake Kimberlite Area, Snowfield still needs to conduct and interpret a ground geophysical survey over the extended and refurbished Mud Lake grid. We anticipate performing this survey after freeze-up and prior to this winter's drilling, once permits are granted. The initial drillholes will be 50 to 100 m away from the known kimberlite structure. Thereafter, the placement of drillholes will rely on information derived from said future geophysical survey and progressive results from future drilling in order to follow the kimberlite.

The Stage III program for the Mud Lake Claim Group would be diamond drilling in preparation for a bulk sample. This drilling may occur in the immediate vicinity of the Mud Lake Kimberlite Work Area, or it may well be directed elsewhere, altogether. The Stage III program is entirely dependent on the results of Stages I and II. Wherever a kimberlite body comes to surface is where our attention and efforts would be concentrated.

All activities referred to in the Snowfield's DAR were set out in the original Land Use Permit Application including reference to a proposed 500 ton bulk sample. Snowfield does not believe that any of the proposed exploration activities could be considered to be "activities outside the Scope of Environmental Assessment." In its Application, Snowfield stated that it would appraise the MVL&WB of the details of such a bulk sample, meaning the location of the sampling would be amended once determined from ongoing exploration.

Snowfield was asked at the Sept 23 meeting with MVEIRB staff to discuss bulk sampling. At that time, Snowfield commented that the perception or concept of a "bulk sample" seems to have become a significant factor or issue in Snowfield's pursuit of a Land Use permit. In this regard, Snowfield submits that the type of bulk sample anticipated is normal exploration methodology entailing either large diameter borehole drilling or trenching with, in this case, the removal of a relatively small amount of kimberlite material (a total of approximately 180 cubic meters composed of 36 cubic meters from five separate locations). If trenching (the preferred method of bulk sampling) is used at Mud Lake, the kimberlitic material would be removed from the bottom of each trench and the five trenches would be refilled followed by reclamation of all disturbed surface area. In the event that a surface sampling (trenching) program is authorized, the area of disturbance is estimated to be 2,000 m^2 or 0.2 ha. The kimberlite samples would not be processed on site. The material would be moved from the property via truck and ice road to a processing facility located either in Yellowknife or in the south. Industry considers the evaluation of a 500 tonne bulk sample to be a natural continuation of a normal "exploration" activity.

Snowfield takes this opportunity to address the operational issues raised on the second page of the August 26 MVEIRB Deficiency letter.

In its original application, Snowfield Development Corp provided MVRB with details of all its option agreements and proposed stages of exploration for five claim packages in its Land Use Permit Application. Three of the claim groupings (Mud Lake Claim Group, Hurcomb 1 Claim and Red Claim Group) are in the Drybones Bay area (NTS mapsheet 85I/04). The last two options are individual and separate claims that do not lie within the Drybones Bay regional study area. GTEN-16 claim lies more than 10 km inland within NTS mapsheet 85I/3 and the FATE claim is at Defeat Lake, NTS mapsheet 85I/5.

In the second part of this submission, Snowfield has made every effort possible to provide the MVEIRB with "drill targets" from our preliminary surveys for your review. Snowfield's five option agreements, listed in Land Use Permit Application MV2003C0023, range from a newly discovered kimberlite body to several areas explored at reconnaissance levels to ground that is completely unexplored.

a. The central portion of the Mud Lake Claim Group was flown by Snowfield Development Corp in 2002. The locations of all airborne magnetic anomalies that, upon future evaluation, may result in the drilling of up to 30 holes on 34 targets, per the application's Stage II work are attached. The number of targets is hereby amended from that used in the Land Use Permit Application.

b. The Hurcomb 1 Claim was also flown by Snowfield Development Corp in 2002. Snowfield herein provides the locations of all airborne magnetic anomalies that, upon future evaluation, may result in the drilling of up to 10 holes on 35 targets, per the application's Stage II work. The number of targets is hereby amended from that used in the Land Use Permit Application.

c. The Red Claim Group is unexplored. There are no targets to present at this time. We ask that MVEIRB use the mineral claim boundaries when addressing site-specific concerns brought forward by other parties.

Both the Hurcomb 1 Claim and the Red Claim Group border Great Slave Lake proper. Snowfield is prepared to negotiate or amend its exploration of the south boundary of the Hurcomb 1 claim, the south boundary of the Red 2 claim and the Red 7 claim in its entirety should it be determined that any cultural or heritage sites exist on those claim areas. In this regard, Snowfield would request reasonable access through those areas to facilitate exploration work on other parts of those claims.

d. The GTEN-16 claim was airborne surveyed by a previous owner. That survey data has been made available to Snowfield. Provided are the locations of three airborne magnetic anomalies that, upon future evaluation, may result in the drilling of up to 5 holes, per the application's Stage I work program.

e. The Fate Claim was airborne surveyed by a previous owner. The geophysical anomalies were indicated to lie within the lake proper. We are presently acquiring that information and will submit targets as soon as possible. For the time being, we ask that MVEIRB use the mineral claim boundary if addressing site-specific concerns brought forward by other parties.

In assessing the total area of the mineral claims it holds under its Ticho Project, it is submitted that the disturbance footprint of the proposed exploration work being applied for under the Application is approximately 8.0 hectares (19.79 acres) or 0.05% of the total area of mineral claims held by Snowfield. The residual environmental effects of Snowfield's entire drilling program on the natural resources of the Drybones Bay area are expected to be negligible. In summation, the proposed Snowfield diamond exploration program in combination with the other proposed programs are not expected to contribute to a significant cumulative effect in the Drybones Bay area.

Snowfield recognizes that the Drybones Bay area is foremost in the hearts and minds of Yellowknife Dene First Nation members for its cultural and biological diversity. The nearest claim boundary of the Mud Lake Claim Group is one km inland from Drybones Bay proper. Three heritage areas were presented at the September 23, 2003 meeting. The Drybones Bay heritage area, Burnt Island heritage area and Cabin Island heritage area lie outside the Mud Lake claim boundaries. In addition, the waters and shorelines of Great Slave Lake are used by many other individuals and groups for commercial and recreational purposes. Snowfield will continue to respect the land and all cultural or heritage sites. The company intends to seek the advice and consult with all parties having an interest in the use and maintenance of those sites.

As discussed at the Sept 23 meeting with MVEIRB staff, Snowfield takes this opportunity to bring to the attention of, and emphasize to, the Board that timing is extremely important to Snowfield with respect to its proposed exploration on the Ticho Project. Missing the forthcoming winter's drilling season would be economically devastating to Snowfield. Securities regulation of publicly-traded companies require operating permits to be in place before a Company can proceed to raise funds for exploration. Upon land use permitting becoming available, it is anticipated that it will then take a further 30 to 60 days to raise exploration funding. In this regard, Snowfield respectfully requests that the Board endeavour, wherever possible, to further expedit the environmental review of Snowfield's proposed Ticho Project exploration programs.

I look forward to a positive conclusion to the Board's Drybones Bay/Wool Bay Impact Review with regards to our Land Use Permit Application for exploration and diamond drilling of optioned mineral claims in the Northwest Territories.

Respectfully

"Robert Paterson"

Robert T. Paterson, President

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1.0 INTRODUCTION

This Environmental Assessment has been prepared in general accordance with the Terms of Reference of the MVEIRB, to assist the MVEIRB, other regulatory agencies, aboriginal organizations and other interested parties in understanding the anticipated environmental consequences of Snowfield's proposed exploratory drilling program. As a result, the Environmental Assessment Report examines the predicted effects, including possible cumulative effects, of the proposed drilling program on the physical, biological and cultural components of the environment in the development area and the region.

2.0 SECTION B-1 (CORPORATE HISTORY)

REQUESTED
Please add a list of projects or include those project profiles in an appendix as part of the DAR.

RESPONSE
Please find appended information on our business of acquiring and exploring mineral properties of merit. Snowfield Development Corp has several small projects underway in British Columbia and northern Quebec, but we remain focused on our main commitment, namely, the diamond properties under option to the southwest of Yellowknife, Northwest Territories.

APPENDED
Listing for Snowfield Development Corp. in 2002-2003 Canadian Mines Handbook.
Appendix 1, p 29, Snowfield DAR.
Project Summaries printed from the company's internet website.

3.0 SECTION C-2 (LOCATION AND DESIGN OF OPERATIONS)

REQUESTED
How will Snowfield Development Corp access each drill location on the claims designated for exploration? Include maps containing sufficient detail to depict access to all drill locations.

RESPONSE

On behalf of Snowfield Development Corp, please amend Gartner Lee Limited (2003) Table 12, Access Roads, Snowfield Development Corp.

Drill operations requiring vehicle access would be conducted during the winter season.

Drill operations requiring helicopter access would be conducted year round.

One (1) ice road would be established on Great Slave Lake from Yellowknife to preexisting Pebble Beach or Cabin Island winter trailheads. Each preexisting trailhead was "hooked" so that the winter trails (or tote roads) are not visible from Great Slave Lake.

Land access to Mud Lake Kimberlite drilling area would be via 6 km of preexisting winter trails established under earlier land use permits (please see airphoto map).

A total of approximately 18 km of preexisting winter trails are available for use within the claim block (please see airphoto map). These winter trails are up to 5 m wide.

Up to 4 km of additional winter trail have been applied for, as spur trails leading from existing winter trails to as-yet-to-be-determined drill sites intended to delineate the Mud Lake Kimberlite. Any new winter trail would be cleared in such a manner as to not break the frozen surface. Downed trees would be bucked to lie flat on the ground. In order to limit the cutting/clearing of trees, winter trail access (and drill sites) would utilize open areas or frozen ice surfaces, wherever possible.

Drill sites atop steep outcrops in the Mud Lake drilling area may require drill placement by helicopter.

Dependent upon preexisting winter trail access and terrain, drill sites elsewhere in the claim block may require drill placement by helicopter.

Access to the Red Claim Group, Hurcomb Claim, Fate Claim and GTEN-16 Claim areas would be by preexisting snowmobile trails or by fixed-wing aircraft or helicopter year-round from Yellowknife.

APPENDED

Central Mud Lake Claim Group geophysical anomaly map.
Hurcomb Claim geophysical anomaly map.
GTEN-16 Claim geophysical anomaly map.

4.0 SECTION C-3 (OPERATIONS)

REQUESTED
What set backs from water bodies will be used for drill pads, sumps and fuel storage?

RESPONSE
Drill Pads
Snowfield Development Corp is not aware of any specific regulations (other than the prohibition of material or debris into a watercourse) governing the distance of set back of drill pads from water bodies. However, our general practice has been to locate drill pads a minimum of 30 m away from the ordinary high water mark of nearby water bodies whenever possible.

In open areas, the footprint of drilling a hole would be limited to the size of a skid-mounted drill or 10 square metres. If a drill site is located within trees, then a drill pad is necessary. This would require the clearing of an area measuring 10 m by 10 m or 100 square metres if accessed by ground transportation. An area of 200 square metres would be required if the drill site is accessed by helicopter, as a rotary-wing aircraft needs room to set men and equipment down, in addition to the space needed to sling the drill on and off the site.

Snowfield Development Corp is committed to minimizing the clearing of trees with drill sites situated on ice, open swamp or outcrop, wherever possible.

Sumps
If a drill site is within 100 metres of a watercourse, drill cuttings in the return water would be collected at the top of the casing during operation of the diamond drill and subsequently disposed of in one of two methods. Drill cuttings will be deposited in a low-lying depression with a set back of at least 100 metres from the ordinary high water mark of the nearest watercourse via slush pump and hose. When and where slush-pumping is impractical (i.e. at a drill setup situated on the ice of a larger water body with a long distance to shore) cuttings will be captured with a settling tank system provided by the drilling contractor. Settling tanks will be emptied at a suitable low-lying depression at least 100 metres inland from the ordinary high water mark of the nearest watercourse, if the work site is accessed by helicopter. Otherwise, settling tanks will be emptied at a suitable location in town if the work site is accessed by ice road.

Greywater from the proposed Pebble Beach camp will be deposited in a sump of suitable capacity with a set back of at least 100 metres from the ordinary high water mark of the closest watercourse.

Fuel Storage

All fuel caches will be placed with a set back of at least 100 m from the ordinary high water mark of the nearest watercourse. Spill contingency kits, suitable to the size of the respective cache, would be provided by the diamond drilling or aviation contractor.

REQUESTED

Clarify the discrepancy in statements regarding on-ice (p 8) and onshore drill holes (p 13) at the Fate Claim.

RESPONSE

The targets, derived from an airborne geophysical survey performed by another company, are within Defeat Lake proper. This information is presently being acquired and will be submitted as soon as possible. Testing of these particular targets would require winter drilling on the ice of Defeat Lake.

Company News Release, August 12, 2002
"This area was originally staked by New Shoshoni Ventures Ltd to cover a number of discrete magnetic anomalies located within Defeat Lake itself."

REQUESTED

Please provide a timeline that shows when each activity will be undertaken for each claim area.

RESPONSE

Appended is a 3 page table by L. Stephenson (2003) based upon Snowfield Development Corp.'s prescribed contractual obligations. Activities planned for the fall of 2003 will be extended into the winter season wherever possible.

Addendum to Timeline Table - 2003 Summer Program Summary - Mud Lake claim group

A small, five week-long program of line-cutting and till sampling was performed, without incident or accident, on the Mud Lake claim group during the summer of 2003. All work performed was below MVRB threshold limits. YKDFN, MRVB, INAC Land Use and WCB Mine Safety were notified prior to fieldwork. A temporary camp of 5 backpack tents and 2 fly-screen tents was set up and subsequently removed from the Pebble Beach area. Access from Yellowknife was by boat and floatplane. Three aboriginal men from N'Dilo, namely, Chris Abel, Felix Beyonnie and Shawn Godard, were employed. The crew was

visited once by the Dettah elders (Archeology) group and once by the Dettah youth (Environmental) group.

Work Performed

The preexisting Mud Lake grid consisted of 0.5 km of baseline and 10 km of wing-lines. During the summer of 2003, the baseline was extended 1 km to the northwest and 50 km of wing-lines, spaced 25 m apart, were added. Cut lines are 1.5 m or less wide per MVRB Land Use threshold limits. 58 till samples were collected from the grid extension to the north of Mud Lake. 18 samples were collected from an area one km to the northeast of Mud Lake. Each sieved till sample is 20 litres or 2.5 gallons in size. Shipment and diamond indicator mineral analysis of till samples are awaited.

5.0 SECTION C-4 (WATER USE)

REQUESTED

Which lakes and ponds will be used as sources for the Snowfield Development Corp.'s proposed development? Please identify these lakes of the operations map.

RESPONSE

The company is aware of Department of Fisheries and Oceans' (DFO) concerns of draw-down from shallow lakes and ponds that are typical of Shield country. The company is also concerned for environmental and safety (equipment ice load) reasons. Diamond drillers will use the nearest water that is not frozen to bottom. Any distance more than 200 m between pump and drill hole is usually charged out by the contractor on a cost-plus basis. Water is pumped down the inside of the drill rod string. It is used to cool and flush the drill bit. The drill cuttings are carried back to surface on the outside of the drill rod string. A small amount of regulatory approved, biodegradable polymer is mixed into the water to assist flushing. No other material, including salt, will be added to the water. Drill cuttings are simply rock that is ground down to clay size while the bit produces an extractable core of rock for geological inspection. A 100 m hole of NQ size (2.5 inch diameter hole) is estimated to require 25,00 litres or 25 cubic metres (DFO - L. Stephenson correspondence). Intake hose will be screened to prevent possible fish entrainment.

Mud Lake Kimberlite Work Area

Water source: interconnected ponds within the shallow wetland area collectively called Mud Lake. The wetland area measures 400 m by 200 m. With up to 20 drill holes anticipated, drawdown will be monitored daily. A second pump can be brought in to

transfer water from deeper ponds if/when needed. Settling tanks will also be kept on hand for recirculating water at the drill should draw-down occur.

Mud Lake, being very shallow, is likely to freeze to the bottom in the winter. During this time any open bottom water that may remain likely becomes anaerobic and devoid of fish. Over the course of five years, the project geologist has yet to observe a resident colony of Bonaparte gulls feeding in Mud Lake.

Mud Lake Claim Group
Water source: nearest lake or pond of sufficient size. Once the list of 34 magnetic anomalies is narrowed down to justifiable drill targets, regulatory agencies will be notified.

Hurcomb Claim
Water source: nearest shallow lake or pond of sufficient size. Once the list of 35 magnetic anomalies is narrowed down to justifiable drill targets, regulatory agencies will be notified.

Red Claim Group
Water source: nearest shallow lake or pond of sufficient size. No magnetic anomalies nor drill targets available as yet.

Fate Claim
On Defeat Lake proper, drawdown is not a problem; drill cuttings would be captured with settling tanks and disposed of in a suitable manner.

GTEN-16 Claim
Anomaly 1, UTM 371325E / 6997000N, small lake
Anomaly 2, UTM 372600E / 6997175N, 4 hectare pond
Anomaly 3, UTM 371350E / 6998275N, lake

6.0 SECTION L (CUMULATIVE EFFECTS)

6.1 Assessment Methodology

The following environmental assessment methodology uses Valued Ecosystem Components (VECs) as the primary focus for evaluating the possible effects of proposed project activities on the more important components of the environment in the development area and, as appropriate, the region. Selection of VECs was based on species, or species groups, that have been previously identified as being important in other northern studies.

These include species that stakeholders, researchers and government regulators consider important and possess high inherent conservation values.

Wildlife species were selected to represent the range of important biological values existing within the area of the proposed project. However, Beanlands and Duinker (1983) stated that it is impossible for an analysis to address all potential environmental components. Therefore, an essential step in assessing the impact of a proposed activity is the identification of the more important VECs at the beginning of an assessment. This process requires selecting indicator species, or indicator habitat, to serve as VECs. VECs can be defined as "the environmental attributes or components identified as a result of a social scoping exercise as having legal, scientific, cultural, economic, or aesthetic value" (Sadar 1994).

VECs selected for this project included wildlife species and wildlife habitat that possess inherently high values to stakeholders. Wildlife species selection was based on species, or species groups, that have been previously identified as being important in other northern study sites. Potential VECs were screened using the following considerations:

- Species listed as rare, threatened, endangered or vulnerable by COSEWIC;
- Species considered sensitive to exogenous disturbance;
- Species considered culturally important (*i.e.* important food source such as moose); and
- Species that are dependent upon major vegetation community types in the study area.

Not all species/habitats selected as potential VECs encompassed all of the above criteria; some were selected on the basis of one category only. In addition, a species, or species groups, considered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC 2002) as being endangered, threatened or vulnerable were automatically considered as potential VECs. VECs selected for this environmental assessment are listed in Table 1.

Table 1: Select Valued Ecosystem Components

Grouping	Species or Entity
Ungulates	Moose
	Barrenland Caribou
Carnivores	Black Bear
	Wolf
	Wolverine
	Fox
Furbearers	Species treated collectively
Birds	Peregrine Falcon
	Falco peregrinus anatum
Fish	Fish (species treated collectively)
Wildlife Habitat	Vegetation
Archaeological Resources	Sites

Using the VECs as the primary focus for the analysis, the assessment of potential effects for each environmental component begins with a review of the main project activities that could cause environmental disturbances during the proposed exploration program.

The evaluation of impacts for each environmental component is addressed in terms of the type or nature of impacts which may occur. The potential impacts are described in terms of a number of possible impact attributes including:

- Spatial scope;
- Direction;
- Magnitude;
- Duration;
- Frequency;
- Confidence;
- Ecological context; and

- Significance.

6.1.1 Residual Effects

Potential residual effects of the Snowfield exploration program (those remaining after the application of appropriate mitigation) on biophysical, heritage and cultural issues in the Drybones Bay area were characterized in terms of criteria such as magnitude, frequency, duration, spatial scope, direction, reversibility, confidence and significance. General definitions for each of these impact attributes are summarized in Table 2.

6.1.2 Assessing Impact Significance

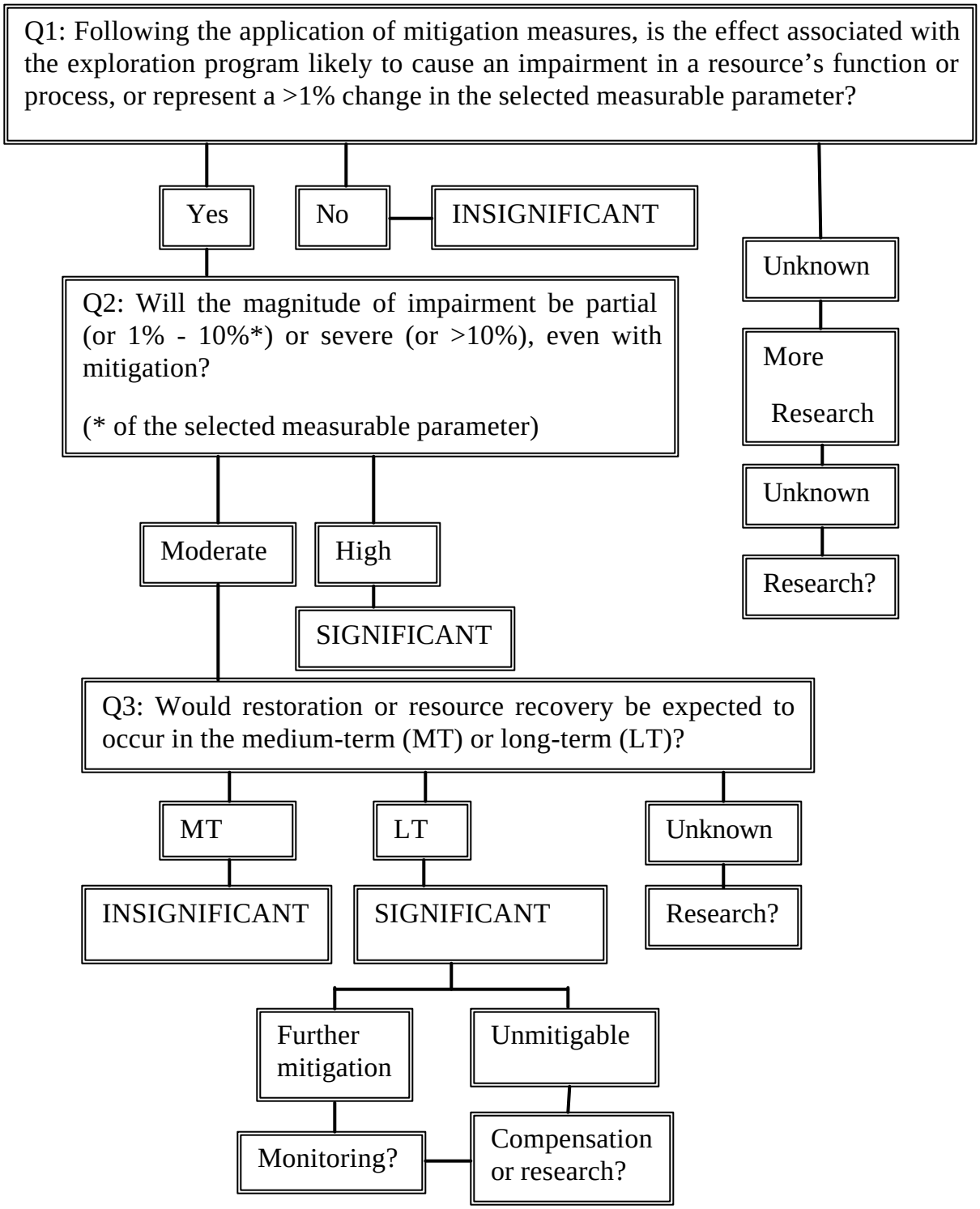
To determine the significance of residual effects, a decision framework consistent with guidance provided by CEAA (2003) was employed by the assessment team. Figure 4 illustrates the general series of questions considered and the decision pathways followed in determining impact significance for the various residual effects associated with the Snowfield exploration program.

Residual effects are outlined as a means of assessing the magnitude of the significance of any remaining impact that could persist after proposed mitigation measures have been applied. The evaluation of impact significance results in the classification of residual impacts ranging from negligible, through minor to moderate and possibly major.

Table 2: Criteria Used to Assess the Significance of Snowfield Development on the Area

Attribute	Descriptor	Definition
Spatial Scope	Site	Effect restricted to the footprint of activities
	Local	Effect restricted to the Snowfield claim block
	Regional	Effect restricted to the Gartner Lee Cumulative Effects Study area (Gartner Lee 2003).
Direction	Positive	Net Beneficial effect
	Neutral	No net change
	Negative	Adverse effect
Magnitude	Low	Minimal or no impairment of resource's function or process; where measurable effects occur, impact will represent a less than 1% change in the selected parameter within the appropriate Study Area.
	Moderate	Partial impairment of a resource's function or process, however, recovery is expected to a pre-activity level: where measurable effects occur impact will represent a 1% to 10% change in the selected measurable parameter within the appropriate Study Area.
	High	Severe impairment of a resource's function or process, recovery is not expected to a pre-activity level; where measurable effects occur, impact will represent a greater than 10% change in the selected parameter within or potentially beyond the appropriate Study Area.
Duration	Short-term	Effects occur for durations ranging from 1 day to the winter season
	Medium-term	Effects occur for < 1 year to end of exploration program
	Long-term	Effects occur for up to 10 years
Frequency	Once	Occurs once only at each activity site
	Sporadic	Occurs on occasion and at irregular intervals
	Continuous	Occurs on a regular basis and at regular intervals
Reversibility	Reversible	Effects are reversible in < 1 year.
	Non-Reversible	Effects are not reversible in less than 10 years.
Confidence	Low	Direct supporting or related information is lacking and best professional judgment cannot be made without evidence
	Moderate	Direct supporting information is lacking but conclusions can be made on related evidence and professional judgment
	High	Assessment based on reliable site specific or regional data and well documented cause-effect relationships
Significance	Insignificant	Based on the analysis and best professional judgment, is the effect on the biophysical cultural or heritage issue of concern significant? – see Figure 1 for approach to determining significance
	Significant	

Figure 4 Methodology for Determining Significance of Residual Effects



6.2 Impacts on Wildlife

6.2.1 Ungulates

Impacts from this proposed exploration program on all wildlife species will be limited to the timeframes and activities occurring during the exploration drilling operations, and marginally during the mobilization and demobilization of the drilling activities.

Potential impacts may be direct or indirect and may result from being exposed to drilling operations (which includes noise from the drill and water pump), camp infrastructure, winter road, and airborne activities from helicopters and fixed-wing aircraft.

The nature of this type of activity is predicable. This is a very small program with one or two drills operating. Impacts from drilling activities will be similar for most wildlife species and, consequently all have been summarized in one table. Table 3 summarizes the impacts and their level of significance for wildlife species, wildlife habitat and archeological sites as it relates to spatial scope, direction, magnitude, duration, frequency, reversibility, confidence and significance.

There are potentially two ungulate species of concern in the area of the proposed exploration activity, moose and barrenland caribou. Moose and caribou are species of very high socio-economic status. The health and persistence of these animals is of importance and of great interest to residents of the NWT. The Bathurst herd is also of keystone importance in the integrity of tundra and taiga ecosystems within their range. Industrial activity could potentially impact moose and caribou populations by influencing distribution and by affecting health and mortality.

6.2.1.1 Moose

Moose in the NWT are considered “Secure” (RWED 2001). They occur throughout the boreal forest of the NWT, and are infrequently observed on arctic or mountain tundra. Their distribution in NWT is believed to be increasing (RWED 2001).

The number of moose in the NWT is unknown, but is estimated at more than 10,000 (RWED 2001). Densities are relatively low in the NWT, ranging from 3 to 17

moose per 100 km² (Graf 1992). Riparian willow communities appear to be a major factor determining moose distribution and are used throughout the year.

Moose occur within the area of the proposed exploration program. Table 3 presents the level of potential impact on moose as a result of the proposed exploration program. Moose encountering drilling activity may show minor displacement behaviour and avoid the immediate area in which the drill is operating. Alternatively, moose could be attracted to an active exploration site because of natural curiosity. The duration of either types of exposure is expected to be brief, perhaps a few minutes to a few hours, and the effects are reversible upon cessation of drilling or by their moving away from drilling activity. The frequency of exposure would be once to sporadic.

Similar temporary behaviours could occur in relation to other aspects of this program such as camp infrastructure, fly-over by helicopter or fixed-wing, etc.

6.2.1.2 Barrenland Caribou

The Bathurst caribou herd is the largest of the five mainland barrenland caribou herds found in the Northwest Territories and Nunavut, and are estimated at 349,000 ± 95,000 animals in 1996 (Gunn *et al.* 1997). Bathurst caribou occupy three major ecoregions, the boreal forest, transition zone and tundra within the Taiga Shield and Southern Arctic ecozones. Their range is approximately 354,000 km^2 (Gunn and Dragon 2000) with major spring calving areas located near Bathurst Inlet and winter ranges in the northern boreal forest. The winter distribution has extended as far south as northern Saskatchewan (Gunn and Dragon 2000). The distribution and density varies from year to year, with the herd rarely using the same area for more than two or three years out of ten (Case et al. 1996).

Caribou distribution is commonly grouped into five separate phases based on the prominent movements of the most mobile segments of the herd. These are spring migration, calving, summer movements, fall migration and winter range. Snowfield's proposed project site lies within the herd's winter range.

The Bathurst caribou herd is listed by RWED (2001) as being "Secure." COSEWIC (2002) has not evaluated this species. The herd is presumed to be stable with natural fluctuations; and are constantly migratory within their range (RWED 2001).

Table 3: Impact Significance for All Wildlife Species (Ungulates, Carnivores, etc.)

Attribute	**Descriptor**	**Definition**
Spatial Scope	Site Local Regional	Operational noise impacts will be site-only. Effects will be localized to the site of the drill pad.
Direction	Positive Neutral Negative	The operational phase noise impacts will likely be negative but could be neutral in some instances.
Magnitude	Low Moderate High	Operational impacts (noise from drill) will have a low impact on the local surroundings for a brief period of time, 2 days.
Duration	Short-term Medium-term Long-term	Operational impacts (noise from drill) will be short-term lasting 1.5 to 2 days, thus disturbance to wildlife would be short-term in nature.
Frequency	Once Sporadic Continuous	Noise impacts from operational phase will be for one brief period of a day or two at each drill site.
Reversibility	Reversible	Effects will typically be reversed, *i.e*. returned to pre-disturbance state within days or at the end of the drilling season.
Confidence	Low Moderate High	Direct supporting information is lacking but conclusions can be made on related evidence and professional judgment.
Significance	Insignificant Significant	The operation phase will have insignificant noise impacts. Based on the analysis and best professional judgment, – see Figure 1 for approach to determining significance.

The winter range of the barrenland caribou occurs within the area of the proposed exploration program. Table 3 presents the level of potential impact on caribou as a result of the proposed exploration program. Any caribou encountering drilling activity may show minor displacement behaviour and avoid the immediate area in which the drill is operating. The duration of this exposure is presumed to be brief, perhaps a few minutes to a few hours, and is reversible upon cessation of drilling or by moving away from drilling activity. The frequency of exposure would be once to sporadic.

The nature of the proposed exploration program is very small in extent. The impact of this activity will be insignificant at the local and regional scale. Exploration activities will not impact the Bathurst caribou herd's health.

There is a large body of literature on the effects of development on caribou and caribou movements, due to a large part to the development of oilfields in northern Alaska. This research suggests that caribou are resilient to the disturbances that have taken place on their ranges. It is important to place potential impacts from the Snowfield exploration project into perspective. Other areas have been subject to considerably more extensive and intensive disturbances, without negative impacts on caribou.

Throughout North America, there is little indication that habitat losses or disturbance resulting from development have been significant factors in altered productivity of barrenland caribou or in adult mortality resulting in population declines (Bergerud *et al.* 1984). On the Alaskan oilfields, any displacement was localized and herd productivity was not adversely affected (Cameron 1983). A number of northern caribou herds have been subjected to developments much greater in area than the current project and have remained stable or increased in size despite these developments.

6.2.2 Carnivore Species

For this assessment, carnivores include wolf, red fox, black bear, wolverine and lynx. Some of these carnivores, such as wolves, are important keystone species in many northern ecosystems. In the NWT, fluctuations in small mammal abundance are often regular in occurrence (3-4 years) and large in magnitude of change (10-50) times. These population fluctuations have major implications predator populations.

There are 5 species of carnivores within this species grouping potentially occurring within the proposed exploration area (Table 5). These species are widely distributed across the region occupying most terrestrial habitat types throughout the boreal forest.

Table 4: Carnivore Species Occurring or Potentially Occurring within the Study Area and Their Status

Common Name	Scientific Name	RWED Status [1]	COSEWIC Status [2]
Wolf	Canis lupus	Secure	Not At Risk – 1999
Red Fox	Vulpes vulpes	Secure	Not Evaluated
Black Bear	Ursus americannus	Secure	Not at Risk – 1999
Wolverine	Gulo gulo	Secure	Vulnerable – Western Population
Lynx	Lynx canadensis	Secure	Not At Risk

1 (RWED 2001)
2 (COSEWIC 2002)

6.2.2.1 Wolf

In the Northwest Territories three different groups of wolves can be distinguished based on behaviour and distribution: timber wolves, arctic wolves and tundra wolves. Timber wolves live below the treeline or in the mountains and rely mostly on non-migratory prey like moose and bison. These wolves maintain regular territories. The arctic wolves live on the arctic islands and prey mostly on caribou, muskox and arctic hare. The tundra wolf follows the mainland caribou herds above and below the treeline on their annual migration. Theses wolves depend largely on barren-ground caribou, and do not maintain regular territories (RWED 2003). The wolves potentially occurring within the Drybones Bay area are part of the latter group, the tundra wolf. These wolves follow the caribou migrations.

Wolves potentially occurring within the proposed project site would only be present if, and when, caribou are in the vicinity. Wolves are habitat generalists, and their strongest affinity is for habitats occupied by their prey. Within the Northwest Territories, the highest density of wolves occur in areas where barren-ground

caribou winter (RWED 1984 1991). Wolf population sizes in the Northwest Territories are unknown, variable and unpredictable. The population trend appears to be stable, with some populations increasing.

This species is listed by RWED (2001) as being "Secure." COSEWIC (2002) has assigned a designation of "Not At Risk" for the *Canis lupus occidentalis,* the subspecies occurring within the proposed exploration program.

Table 3 presents the level of potential impact on any of the wildlife species that may be present in the area as a result of the proposed exploration program. Wolves will likely be present only when caribou are in the region. Any wolf encountering drilling activity may show minor displacement behaviour and avoid the immediate area in which the drill is operating. The duration of this exposure is presumed to be brief, perhaps a few minutes to a few hours, and is reversible upon cessation of drilling or by moving away from drilling activity. The frequency of exposure would be once to sporadic.

The nature of the proposed exploration program is very small in extent. The impact of this activity will be insignificant at the local and regional scale. Exploration activities will not impact the wolf's population at the regional level. The level of impact of the proposed exploration program on wolves will be insignificant.

6.2.2.2 Red Fox

The red fox is the most widely distributed carnivore in the world. It occurs throughout most of North America, Asia and Europe. It ranges across Canada as far north as some of the Arctic islands. Large numbers occur below the treeline of the NWT. This species occupies many diverse habitats.

The population estimate for the NWT is unknown but is estimated to be greater than 10,000 individuals (RWED 2001). The population is cyclic and fluctuates on an 8 to 10 year cycle. The distribution of red fox is believed to be stable. The population density of red fox is estimated to be 10 individuals per 100 km^2 (RWED 2001).

This species is listed by RWED (2001) as being "Secure," and has not been evaluated by COSEWIC (2002).

Table 3 presents the level of potential impact on any wildlife as a result of the proposed exploration program. Foxes do occur in the region. However, foxes will not likely show displacement behaviour as a result of drilling activity; and in fact, may be attracted to exploration activities. The length of exposure would be limited to the duration of the individual activities making up the exploration program.

The impact of such activities will be insignificant at the site, local and regional scale. Exploration activities will not impact the fox's population at the local or regional level. The level of impact of the proposed exploration program on foxes will be insignificant.

6.2.2.3 Black Bear

The size of the black bear population of the NWT is unknown, but is estimated between 3,000 and 10,000 (RWED 2001). Black bears are non-migratory and occupy the boreal forest throughout the year. Their distribution includes the region of the proposed exploration activity. Little is known about black bear occurrence within this area.

Black bears are generally closely associated with treed environments. In most areas, their diet is dominated in all seasons by vegetation. However, meat, especially winter-killed ungulates during spring, insects during summer, and possibly fish, can be locally important.

The population trend is unknown but thought to be healthy across its entire range (RWED 2001).

Table 3 presents the level of potential impact on any wildlife as a result of the proposed exploration program. Black bears do occur in the region and, in fact, are commonly seen in the area. However, during the winter months bears will be hibernating. Therefore, during winter black bears will not exhibit displacement behaviour as a result of drilling activity. In the summer, assuming that the camp is in existence, bears may be attracted to the camp. The length of exposure to the camp would be seasonal and could extend for the duration of the exploration program.

At the site and local level individual bears may be impacted if they become habituated and have to be removed from site. Exploration activities will not impact

the bear's population level. Overall, the level of impact of the proposed exploration program on black bears will be insignificant.

6.2.2.4 Wolverine

Wolverines range throughout most of northern and western Canada. They are known to occur in the region of the proposed exploration program. Little is known regarding their population size in the NWT, as they are difficult to locate during snow-free periods, lead a largely solitary lifestyle, and have a lower population density than wolves or foxes. They have large home ranges and live at low densities even under optimal conditions (Banci 1994).

Wolverines are scavengers and predators of birds and small mammals, relying on a diversity of foods to offset the uncertainty of availability in the harsh northern environment. There appears to be a correlation between wolverine numbers, ungulate populations, and the presence of more (successful) efficient predators such as wolves (Van Zyll de Jong 1975).

The population estimate for wolverines in the NWT is unknown but is estimated to be greater than 3,000 individuals (RWED 2001). The trend in their distribution is unknown. Population density is estimated to be one individual per 625 to 265 km^2, depending on the gender of a given individual and food availability (RWED 2001).

This species is listed by RWED (2001) as being "Secure." COSEWIC (2002) has assigned a designation of "Vulnerable" to the western population of wolverine.

Table 3 presents the level of potential impact on any wildlife as a result of the proposed exploration program. Wolverines will not likely show any signs of displacement as a result of drilling activity; and in fact, may be attracted to the camp. The length of exposure as related to the camp may occur during the duration of the exploration program.

The impact of this activity will be insignificant at the site, local and regional scale. Exploration activities will not impact the wolverine's population at the local or regional level. The level of impact of the proposed exploration program on wolverines will be insignificant.

6.2.2.5 Lynx

Lynx occur throughout the forested areas of proposed exploration program. The size of the population within the NWT is unknown. There has only been one study conducted on lynx in the NWT. A long-term live-trapping and radio-collaring program was begun in 1989 on lynx in the Mackenzie Bison Sanctuary (Poole 1992 and 1994).

The main prey of lynx is the snowshoe hare. Because population levels of hares are cyclic, habitat use by lynx in relation to food varies considerably depending on the stage of the prey cycle.

There are no data available on the numbers of lynx in the NWT. RWED (2001) speculate their numbers to be greater than 3,000 and perhaps even greater than 10,000 individuals. Densities have been determined for lynx in the Mackenzie Bison Sanctuary since 1989. Peak densities were estimated at 30 per 100 km^2, and declined to about 3 per 100 km^2 (Poole 1994). The trend in their distribution is cyclic dispersion; that is they disperse when prey levels decline.

This species is listed by RWED (2001) as being "Secure." COSEWIC (2002) has assigned a designation of "Not At Risk."

Table 3 presents the level of potential impact on any wildlife as a result of the proposed exploration program. Lynx may or may not show displacement behaviour as a result of drilling activity. Lynx may experience exposure during the duration of the exploration program.

The impact of this activity will be insignificant at the site, local and regional scale. Exploration activities will not impact the lynx's population at the local or regional level. The level of impact of the proposed exploration program on lynx will be insignificant.

6.2.3 Furbearers

For this assessment, furbearers include those species that have been traditionally trapped or hunted for their fur. There are seven furbearing animals considered within this section: beaver, muskrat, marten, ermine, least weasel, mink and river

otter (Table 6). Although lynx, fox, wolf and wolverine are commonly considered furbearers, they were placed, and assessed, under carnivores.

Table 5: Furbearer Species Occurring or Potentially Occurring within the Study Area and Their Status

Common Name	Scientific Name	RWED[1]	COSEWIC[2]
Beaver	Castor canadensis	Secure	Not Evaluated
Muskrat	Ondantra zibethicus	Secure	Not Evaluated
Marten	Martes americana	Secure	Not Evaluated
Ermine	Mustela erminea	Secure	Not Evaluated
Least Weasel	Mustela nivalis	Secure	Not Evaluated
Mink	Mustela vision	Secure	Not Evaluated
River Otter	Lutra canadensis	Sensitive	Not Evaluated

1 (RWED 2001)
2 (COSEWIC 2002)

The furbearers occurring in the NWT are widely distributed throughout the boreal forest. The seven furbearers listed above potentially occur throughout the year within the area of the proposed exploration program.

Furbearers represent a large and diverse group of mammals, and each species has different food and cover requirements. They occur in most aquatic and terrestrial habitats and, consequently, not any one particular habitat can be considered more important than another. Most are adaptable species ranging over large geographic areas.

6.2.3.1 Beaver and Muskrat

Beavers and muskrats are common throughout the region, wherever appropriate aquatic habitat is found such as slow-flowing streams, lakes, rivers, and marshes. Their densities are highly variable and dependent upon habitat quality. However, for beaver 0.1 to 0.4 active lodges km^2 may be found in prime river habitat; and 26 to 58 lodges per 100 km^2; for muskrat, 3 per 0.5 ha of pond up to 25 per 0.5 ha of marsh (RWED 2001). The population is believed to be stable in this region (RWED

2001). RWED (2001) lists the beaver and muskrat to be "Secure." COSEWIC (2002) has not evaluated this species.

Table 3 presents the level of potential impact on any wildlife as a result of the proposed exploration program. Beaver and muskrats are unlikely to show displacement behaviour as a result of drilling activity because essentially all exploration activities will take place on land. They may be within hearing distance during the duration of an individual hole being drilled.

The impact of exploration activity on beaver and muskrats will be insignificant at the local and regional scale. Exploration activities will not impact beaver or muskrat population levels at the local or regional level. The level of impact of the proposed exploration program on beaver and muskrats will be insignificant.

6.2.3.2 Marten

Their occurrence in the Northwest Territories (NWT) is tied to the northern boreal forest and they reach the northern limit of their range in the Northwest Territories. They likely occur throughout the area of the proposed exploration program. Little is known about these populations.

Throughout their range marten associate closely with late-successional stands of mesic (*i.e.*, moist) coniferous forests, especially those with complex physical structure near the ground (Allen 1984; Buskirk and Powell 1994; Clark et al. 1987; Thompson 1994). Physical structure refers to the vertical and horizontal complexity created by a diversity of tree sizes and shapes, light gaps, dead and downed wood, varied shrub understory and layers of overhead cover.

Marten populations in the Northwest Territories are considered "secure" (RWED 2001).

Table 3 presents the level of potential impact on any wildlife as a result of the proposed exploration program. Marten may or may not show displacement behaviour as a result of drilling activity. They may hear drilling activities during the duration of the exploration program.

The impact of exploration activity on marten will be insignificant at the local and regional scale. Exploration activities will not impact marten population at the local

or regional level. The level of impact of the proposed exploration program on marten will be insignificant.

6.2.3.3 Mink

Mink range across forested areas of the Northwest Territories. Little is known about the ecology of mink in Canada's boreal forest, and has received little management attention, except as an indicator of environmental contamination (Poole et al. 1995).

Although mink can be found in practically any habitat type, they are obligate riparian animals, never found far from permanent streams, wetlands or other surface water. They are more often associated with coniferous and mixed forests than deciduous forests, and with open water rather than with particular habitat types. Habitats associated with small streams are preferred over habitats near large, broad rivers (Allen 1986). Mink favour forested wetlands with abundant cover such as shrubs, fallen trees, and rocks (Allen 1986).

Population density for mink depends on habitat quality and prey availability. RWED (2001) report mink densities between 3 to 8 individuals per km^2 in good habitat and as low as 1.5 individuals per km^2 in poor quality habitat. It is difficult to determine what the population trend is for mink; however, RWED (2001) suggests it may be stable.

Mink populations in the Northwest Territories and Nunavut are considered "secure" (RWED 2001). COSEWIC (2002) has not evaluated this species.

Table 3 presents the level of potential impact on any wildlife as a result of the proposed exploration program. Mink may or may not show displacement behaviour as a result of drilling activity. They may hear drilling activities during the duration of the exploration program.

The impact of exploration activity on mink will be insignificant at the local and regional scale. Exploration activities will not impact mink population at the local or regional level. The level of impact of the proposed exploration program on mink will be insignificant.

6.2.3.4 Ermine and Least Weasel

Two species of weasels are found within the region of the proposed exploration program, the ermine and the least weasel. Habitat used by these species is not dissimilar and they share some overlap, which includes boreal coniferous or mixed forest, tundra, meadow boundaries, shrubby riverbanks and lakeshores. Population density for both species depends on habitat quality, prey availability and time of year. For both species, the populations have considerable annual fluctuations and yearly cycles depending upon prey levels.

Both species are listed by RWED (2001) as being "Secure." COSEWIC (2002) has not evaluated this species.

Table 3 presents the level of potential impact on wildlife as a result of the proposed exploration program. Ermine or least weasels may or may not show displacement behaviour as a result of drilling activity. They may hear drilling activities during the duration of the exploration program.

The impact of exploration activity on ermine or least weasels will be insignificant at the local and regional scale. Exploration activities will not impact ermine or least weasel populations at the local or regional level. The level of impact of the proposed exploration program on ermine or least weasels will be insignificant.

6.2.3.5 River Otter

The river otter is the largest member of the Mustelidae family. Historically, they were found in all major waterways of North America. Presently, their distribution still covers the majority of Canada, except in the central prairies. Toweill and Tabor (1982) show the range of the river otter occurring within the area of the proposed exploration activity.

Otters are aquatic mammals and are well adapted to a wide variety of aquatic habitats. Although they frequent lakes and ponds, they typically live in marshes and along wooded rivers and streams with sloughs and backwater areas.

Otters are opportunistic and will take foods that are most available. The most available fish tend to be the slower-swimming species and those that are most abundant.

Population density for otters is unknown for the NWT but RWED (2001) estimates it is "low to moderate." The trend in the population is believed to be stable in the Sahtu but increasing in the Inuvik region (RWED 2001).

This species is listed by RWED (2001) as being "Sensitive." COSEWIC (2002) has not evaluated this species.

Table 3 presents the level of potential impact on any wildlife as a result of the proposed exploration program. Otters, if present in the area, may or may not show displacement behaviour as a result of drilling activity. They may hear drilling activities during the duration of the exploration program.

The impact of exploration activity on otters, if present, will be insignificant at the local and regional scale. Exploration activities will not impact otter population levels at the local or regional level. The level of impact of the proposed exploration program on otters will be insignificant.

6.2.4 Birds

Based on range maps, government reports and on-going research in the region, approximately 185 bird species may potentially occur in the region of the proposed exploration program at sometime during the year (Godfrey 1979; Bromley and Trauger ND). Most of these species are migrants and only pass through the area on their northern and southern migration.

The Peregrine Falcon, *Falco peregrinus anatum*, is the only bird species with special conservation status potentially residing in the region of Snowfield's claimblocks. The subspecies, *F. p. anatum*, is listed as "Threatened" by COSEWIC (2002).

The NWT is home to two of the three subspecies of Peregrine Falcons found in Canada. The *Falco peregrinus anatum* subspecies are distributed generally throughout most of the NWT below the treeline, with a large population located along the Mackenzie River Valley.

Wild peregrines live an average of five years. They begin breeding in their second year. In the NWT, two to four eggs are laid between May and early June.

Peregrines have three main habitat requirements. They need proper nesting sites, usually on cliff ledges near water. They also need nesting ranges. These ranges are actively guarded and can extend up to 1 km from the nest. The third requirement is a home range. The birds do not defend this range but they do hunt within it. The home range overlaps the nesting range and can extend up to 27 km from the nest. Peregrines mainly hunt other birds in the air; so open tundra, grasslands, prairies and waterways are important habitats.

Two Peregrine Falcons have been documented flying adjacent to Snowfield's claimblocks, along Pebble Beach in the fall time. This observation was interpreted as two individuals flying southward during their fall migration.

The peregrine population in Canada has increased dramatically since the mid-1970s. In 1995, 58 nesting pairs with eggs were identified along the Mackenzie River Valley. There were only 38 pairs in the same area in 1985. However, it's not clear how much of this increase is due to increased effort and knowledge of nest sites.

The range of peregrines in Canada has remained stable but population numbers have decreased, particularly in southern Canada. There are over 220 documented breeding pairs of Peregrine Falcons in northern Canada (NWT, Yukon, Nunavut, northern Quebec), including 83 pairs of known breeders in NWT (Mackenzie Valley) (RWED 2001). The population trend is increasing from previous population crash in the 1970s. It has continued to increase since 1980s but has stabilized since 1990 (RWED 2001).

Table 3 presents the level of potential impact on any wildlife, including birds as a result of the proposed exploration program. Individual bird species may or may not show displacement behaviour as a result of drilling activity. Many of the winter birds species such as common ravens, gray jays and black-capped chickadees may be attracted to exploration activities and to the camp. During the summer months, some waterfowl and passerines may be temporarily displaced from areas where drilling is occurring.

The impact of exploration activity will be insignificant at the local and regional scale. Exploration activities will occur predominantly during the winter months and, to a lesser degree, during the middle of the summer. These activities are not expected to impact Peregrine Falcon population levels at the local or regional level. The level of impact of the proposed exploration program on Peregrine Falcons will

be insignificant, as they are not known to reside in the area during the winter or summer.

6.2.5 Fish

The term “fish” is used in a general sense; species are grouped together and treated collectively. The term “fish” is used in context to all species of fish potentially occurring in the region of Great Slave Lake.

A total of 49 fish species occur within the NWT (RWED 2001). COSEWIC has assessed only one of the 49 fish species listed and has ascribed a status of “Special Concern” to the shortjaw cisco (COSEWIC 2002).

The shortjaw cisco is a member of the same family as salmon and trout (Salmonidae). They occur in most provinces across Canada. This species was once common in the Great Lakes but have declined do to over fishing and competition from exotic species and, consequently, have been assigned a “Threatened” status across Canada. However, their population levels are not known to be depressed within Great Slave Lake.

Shortjaw ciscoes are deepwater fish and are usually found in waters between 55 m to 144 m deep. The impact of exploration activity will be insignificant at the local and regional scale. Exploration activities will not impact shortjaw cisco population levels at the local or regional level. The level of impact of the proposed exploration program on shortjaw cisco will be insignificant.

In addition to the shortjaw cisco, other fish species and fish habitat are not anticipated to be impacted. Information is not available to identify the number of lakes in these areas that support fish populations or their overall biomass of fish. Lakes within the claimblocks are very small and shallow; and most freeze to the bottom during the winter. Interconnecting streams are small or ephemeral. Fish populations, if they exist, in the claimblocks have very little opportunity for genetic exchange with fish populations from other lakes because of limited migration routes. Three lakes within the claimblocks contain deeper bays and, presumably, do not freeze to the bottom in those sections. Sport fish are not believed to exist in any of the lakes, as none have been seen in previous years. It is also uncertain as to whether forage fish exist in these lakes, as terns and Bonaparte’s Gulls nest in the area but are never seen hunting over these lakes.

Fish are not believed be present in the majority of the large, with the possibility of three lakes. Since no activities are planned to take place on any of these lakes, the fish or fish habitat within these lakes will not be affected by the drilling program. Therefore, since fish or fish habitat will not be affected by the exploration program there cannot be any cumulative effects on fish or fish habitat from this project.

6.3 Impacts on wildlife Habitat

6.3.1 Vegetation

Local ecosystems, composed of areas of distinct plant communities with their associated soils, occur in a relatively predictable manner across the landscape. The ecosystem mosaic changes across the landscape in response to environmental factors such as local climatic effects (snow accumulation areas), soil physical properties (soil texture, coarse fragment content and composition, drainage) and physiographic factors (slope position, slope angle and slope aspect).

The most common community type for this ecoregion is jack pine growing on rock outcrops. The jack pine community type is characterized by an open canopy, a low percentage cover of soil over the underlying bedrock with a high cover of exposed rock or rock covered directly by lichens. This community typically occurs on rock outcrops. The vegetation/terrain type ranges within each site from xeric conditions on the exposed rock areas to hydric conditions in the depressions between the rocks. Thus, a mixture of dry and wet loving species is found within this community. It may grow over a range of slopes and occurs on all aspects.

The mixed forest and sedge wetland are two other common community types in the area, although they occur in limited proportions. The mixed forest community is characterized by a large percentage cover of soil or non-peatland mosses over the underlying bedrock. This community typically occurs on the dominant upland terrain types in the area. It may grow over a range of slopes and occurs on all aspects. The soil generally has a moisture regime ranging from mesic to hygric.

The sedge wetland community occurs along natural seepages in lower lying areas relative to the surrounding topography. The soil type is subhydric to hydric mossy peat and occur in flat areas with little slope and no dominant aspect. There is no canopy or subcanopy tree layer, however, there are a few isolated pockets of trees

and shrubs that include black spruce, tamarack, willow and dwarf birch. The majority of the ground cover comprised of aquatic sedge followed by minor amounts of other species such as cotton grass, marsh cinquefoil and reed-bentgrass.

6.3.2 Impacts

Impacts on vegetation will take place during all stages of the development and can be divided into two classes: areas where existing vegetation will be completely lost due to excavation and burial, and areas where vegetation will be degraded due to different levels and kinds of disturbance.

6.3.2.1 Loss of Vegetation

Trees currently occupying proposed drill sites will be cut down. Winter roads and access trails will cross a mosaic of ecosystem units, impacting existing vegetation to varying degrees. For the most part, access roads will utilize already existing routes, or in some cases new trails will be cut. The exploration program will create a project footprint. There presently exists 25.72 ha of cleared areas from past exploration projects. This exploration project will generate up to a maximum of 8.0 ha of nearly cleared areas (Table 6). The new footprint represents 0.05% of the total area of mineral claims held by Snowfield.

The drilling pads will be left to recover naturally at the end of the project The overall residual effects of habitat loss are negligible as site cleanup and natural revegetation will mitigate any potential effects on disturbed vegetation.

The degree of protection of vegetation by snow or ice cover on winter roads is an important variable in determining the general impacts. Snow-compacted or ice-capped snow roads with a sufficient cover of snow or ice will reduce impacts of vehicle traffic on vegetation.

Given the susceptibility of the vegetation in the project area to damage and the slow recovery of affected areas, several mitigative measures will minimize any potential impacts. Lakes are utilized where possible to minimize portages and road routes are chosen to minimize drifting snow. Roads are also used for short periods and have limited traffic.

Table 6: Foot Print Size in Project Area

Foot Print	**Total** (ha)
Pre-existing Drill Sites	0.16
Pre-existing Storage Areas	0.06
Pre-existing Winter Trails	9.0
Pre-existing Grids	16.5
Subtotal	**25.72**
Applying for:	
Drill Sites (n = 100)	1.0
New Winter Trails	2.0
Camp Infrastructure	1.25
New Grids	3.75
Subtotal	**8.0**
Total Area (ha) (includes pre-existing)	**33.72**

Where vegetation has been damaged or completely removed, it can be expected that pioneer species such as grasses, sedges and lichens will slowly recolonize the sites. As part of the rehabilitation process, any denuded areas would be reseeded to increase the rate at which this natural recolonization will proceed. Where vegetation has been damaged but not destroyed, the site will be left to allow existing plants to recover naturally.

It will not be possible to completely avoid damage to vegetation due to the use of winter roads. However, if mitigative measures are followed, these effects will be minimal. The most significant impact of winter roads on vegetation will be aesthetic. As already stated, revegetation and recovery following disturbance is very slow in subarctic climates, so that residual effects of the development may be visible for some time.

6.4 Impacts on Heritage Resources

The Prince of Wales Museum has identified 3 archaeological sites in the region of the proposed exploration program; and the Yellowknife's Dene First Nation (YKDFN) have knowledge of approximately 64 sites throughout the region. Although this information is not for public consumption, polygons have been used to mark off areas of concern at a regional scale, as viewed on a topographical map presented at MVEIRB meeting on September 23, 2003. These areas do not overlap Snowfield's claimblocks, expect for one small area along the south-side of Hurcomb 1 Claim # F16594. There is overlap of a few hundred metres along the southern edge of Hurcomb 1 Claim # F16594. Snowfield acknowledges this area of overlap and will not work in that area.

No recorded sites are located within Snowfield's claimblocks, or in the vicinity of the exploration activity. The closest known site is over 1 km from the northern edge of a Drybones #4 Claim, Tag # F29229, with the rest of the sites considerably further away. Sites are typically located adjacent to Great Slave Lake's shoreline. There are no planned exploration activities occurring along this shoreline, expect for the approach landing for the winter road. This approach is not within any identified areas of concern.

Snowfield's proposed exploration program (winter roads, drill pads and camp infrastructure) does not threaten any of the known archaeological sites, or infringe upon those areas delineated by the YKDFN.

6.5 Cumulative Effects Considerations

Cumulative environmental effects can result from the combination of environmental effects from a number of different developments and/or activities. In determining possible cumulative effects, the Canadian Environmental Assessment Agency (CEAA 1999) recommends that three basic premises be considered:

- There must be an environmental, biophysical, social or cultural impact related to the project.
- The effect must be demonstrated to operate cumulatively, additively or synergistically with impacts from other projects or activities.

- The other projects or activities exist or are likely to be carried out and are not hypothetical.

The proposed exploration program represents a continuation of previous work, under a different permit, that have been ongoing in the area since 2002.

For work proposed under this program, Snowfield will use existing winter trails from previous work as much as possible. The environmental assessment of Snowfields proposed diamond exploration project has determined that all anticipated impacts of greatest concern to the wildlife resources residing in or passing through the Drybones Bay area will be of a very short-term, highly localized, rapidly reversible and negligible nature. This is a small exploration program generating small and limited effects on the environment.

As the project location is remote, access to the targeted areas will be primarily through the use of existing winter trails and cleared areas, and to a limited extent a few new winter trails. In addition for some sites, access will be through the use of helicopter or small fixed-wing aircraft with floats. Helicopter over-flights may have very short-term, limited and rapidly reversible disturbance effects on wildlife such as moose, caribou and birds that may be in the immediate vicinity.

The estimated surface disturbance for the entire exploration program will be in the order of 1.0 ha for drill sites, 2 ha for new winter access trails, 3.75 ha of new grids and 1.25 ha for camp infrastructure, for a total of 8.0 ha. This represents a footprint of 0.05% of the total area held by Snowfield Development Corporation. The limited terrain disturbance that will occur at any of the exploration sites will be restored (if necessary) and reclaimed as near as possible to their pre-existing natural state.

The small quantities of essentially benign drilling wastes (0.14 m^3 of cuttings and rock flour per 100 m drilled) generated at each drill site will be deposited in suitable natural depressions and will temporarily affect small areas of vegetation within the footprint of the disturbed area at each drill site.

In total, the residual environmental effects of Snowfield's entire drilling program on the natural resources of the Drybones Bay area are expected to be negligible. Similar conclusions have been drawn for the other, much smaller-scale exploration programs proposed in the general area by other companies including New Shoshoni Ventures Ltd, Gold City Industries Ltd. and

Consolidated Goldwin Ventures Inc. As a result, , the proposed Snowfield diamond exploration program in combination with the other proposed programs are not expected to contribute to a significant cumulative effect.

However, notwithstanding this initial conclusion, Snowfield is aware of the regional cumulative effects study that is currently being completed by Gartner Lee Limited for the MVEIRB. We understand that this report will be finalized in the near future and that it will be used to assist the Board in completing its evaluation of possible cumulative effects of the various exploration programs proposed for the Drybones Bay area.

Snowfield looks forward to participating in follow-up dialogue with the MVEIRB and others in relation to the results of this study and any additional measures that may be identified to further mitigate remaining environmental or other public concerns related to exploration drilling in the Drybones Bay area.

7.0 CLOSURE

We trust that this report meets your present requirements. Please contact any of the undersigned should there be any questions.

Respectfully submitted,

"Robert Paterson" *"Mike Beauregard"*

Robert Paterson
President, CEO
Snowfield Development Corporation

Mike Beauregard
Contract Geologist
Yellowknife, NWT

Richard A. W. Hoos, M.Sc. R.P. Bio
Senior Environmental Scientist
Arctic Division

Steve Moore, B.E.Sc., B.A.
Wildlife Biologist
EBA, Yellowknife

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9.0 APPENDICES

Appendix A: Documents Supporting Cover Letter

1. Drill Results, Drybones # 4 Claim
2. Sept. 25, 2003 News Release, Snowfield Development Corp

Appendix B: Documents Supporting Section B-1 (Corporate History)

1. 2002-2003 Canadian Mines Handbook, company listing
2. p. 29, Snowfield Development Corp DAR
3. Project Summaries per company's website

Appendix C: Documents Supporting Section C-2 (Location and Design of Operations)

1. Central Mud Lake Claim Group Geophysical Anomaly Map
2. Hurcomb Claim Geophysical Anomaly Map
3. GTEN-16 Claim Geophysical Anomaly Map

Appendix D: Document Supporting Section C-3 (Operations)

1. Timelines for Exploration of Mud Claim Group, Hurcomb Claim, Red Claim Group, Fate Claim and GTEN-16 Claim

Appendix E: COSEWIC Designations and Species Listing for the NWT

APPENDIX A:
Documents Supporting Cover Letter

1. Drill Results, Drybones # 4 Claim
2. Sept. 25, 2003 News Release, Snowfield Development Corp

Drill Results From Programs Performed Under Previous Land Use Permits
Drybones #4 Mineral Claim, Snowfield Development Corp.

Hole Identifier	UTM Coord	Grid Coord	Notes
MUD-1		3+75N, 0+10W	Swamp setup, short vertical hole, casing pulled, granite only
MUD-2		2+50N, 0+40E	Swamp setup, short vertical hole, casing pulled, granite only
MUD-3		4+50N, 0+60 W	Swamp setup, short vertical hole, casing pulled, granite only
MUD-4	356559E, 6889817N	3+75N, 1+50E	Swamp setup, short vertical hole, casing pulled, granite only
MUD-5	356729E, 6889452N	0+75N, 1+60W	Collared on outcrop, long hole angled at –45°, granite and diabase
MUD-6	356602E, 6889605N	2+55N, 1+66W	Collared onshore, 94.49 m hole angled at –45°, granite, diabase and 2.13 m of kimberlite at vertical depth of 24 m, discovery hole
MUD-7	Same setup as MUD-6		Collared onshore, 48.16 m hole angled at –60°, granite, diabase and 0.30 m of kimberlite at vertical depth of 25.6 m.
MUD-8	356605E, 6889648N	2+80N, 1+30W	Collared onshore, 35.53 m hole angled at –45°, drill on setup under permit to store, 4.88 m of kimberlite at vertical depth of 17.5 m, **significant kimberlite intersection**.
SNOW-1	356568E, 6889562N	2+50N, 2+14 W	Collared onshore, 105.77 m hole angled at –45°, granite and diabase.
SNOW-2	Same setup as SNOW-1		Collared onshore, 60.05 m vertical hole, granite and diabase.
SNOW-3	356576E, 6889642N	3+00N, 1+50W	Collared onshore, 124.05 m hole angled –45°, 3.70 m of kimberlite at vertical depth of 20.1 m.
SNOW-4	Same setup as SNOW-3		Collared onshore, 41.76 m hole angled at –75°, casing pulled, 2.20 m of kimberlite at vertical depth of 22.7 m.
SNOW-5	356553E, 6889683N	3+50N, 1+50W	Collared onshore, 75.29 m hole angled at –45°, 10.10 m kimberlite at vertical depth of 26.1 m, **significant kimberlite intersection**
SNOW-6	Same setup as SNOW-5		Collared onshore, 44.81 m vertical hole, 4.95 m kimberlite at vertical depth of 17.75 m, **significant kimberlite intersection**
SNOW-7	356560N, 6889680N	3+45N, 1+45W	Collared onshore, 108.81 m hole angled at –45°, 9.70 m of kimberlite at vertical depth of 36.7 m, **significant kimberlite intersection**; 0.50 m of kimberlite at vertical depth of 51.4 m; 0.30 m of kimberlite at vertical depth of 52.5 m
SNOW-8	356630N, 6889750N	3+25N, 0+75W	Swamp setup, 130.76 m hole angled at –45°, 1.50 m of kimberlite at vertical depth of 27.9 m; 0.07 m of kimberlite at vertical depth of 65.9 m; 0.50 m of kimberlite at depth of 72.6 m;0.70 m of kimberlite at depth of 73.4 m

Note: Underlined = kimberlite intersection, **Bold** = significant kimberlite intersection.

APPENDIX B:

Documents Supporting Section B-1 (Corporate History)

(*not included in pdf file)

1. 2002-2003 Canadian Mines Handbook, company listing
2. p. 29, Snowfield Development Corp DAR
3. Project Summaries per company's website

APPENDIX C:
Documents Supporting Section C-2
(Location and Design ofOperations)

(*not included in pdf file)

1. Central Mud Lake Claim Group Geophysical Anomaly Map
2. Hurcomb Claim Geophysical Anomaly Map
3. GTEN-16 Claim Geophysical Anomaly Map

APPENDIX D:
Document Supporting Section C-3 (Operations)
(*not included in pdf file)

1. Timelines for Exploration of Mud Claim Group, Hurcomb Claim, Red Claim Group, Fate Claim and GTEN-16 Claim

APPENDIX E:
COSEWIC Designations and Species Listing for the NWT

APPENDIX E
COSEWIC SPECIES LISTINGS FOR THE NWT

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) determines the national status of wildlife in Canadian species, subspecies and separate populations suspected of being at risk. COSEWIC bases its decisions on the best up-to-date scientific information available. All native mammals, birds, reptiles, amphibians, fish, molluscs, lepidopterans (butterflies and moths), vascular plants, mosses and lichens are included in its current mandate (COSEWIC 2001).

COSEWIC's definitions of terms & risk categories for wildlife are discussed below.

WILDLIFE SPECIES

Species, subspecies or biologically distinct population of animal, plant or other organism, other than a bacteria or virus, that is wild by nature and

a. is native to Canada; or
b. has extended its range into Canada without human intervention and has been present in Canada for at least 50 years

EXTINCT

A wildlife species that no longer exists.

EXTIRPATED

A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.

ENDANGERED

A wildlife species that is facing imminent extirpation or extinction.

THREATENED

A wildlife species that is likely to become an endangered species if nothing is done to reverse the factors leading to its extirpation or extinction.

SPECIAL CONCERN (VULNERABLE)

A wildlife species of special concern because it is particularly sensitive to human activities or natural events, but does not include an extirpated, endangered or threatened species.

NOT AT RISK

A wildlife species that has been evaluated and found to be not at risk.

DATA DEFICIENT (INDETERMINANT)

A species for which there is insufficient scientific information to support status designation.

COSEWIC Species listings for the Northwest Territories

SPECIES	COSEWIC LISTING	PRESENT IN VICINITY OF SNOWFIELD'S PROPOSED DEVELOPMENT AREA [1]
Eskimo curlew	Endangered	N
Wood bison	Threatened	N
Grizzly bear	Special Concern	N
Polar bear	Special Concern	N
Caribou (Woodland subspecies)	Threatened	N
Wolverine	Special Concern	Y
Peregrine falcon (*Falco peregrinus tundrius*)	Special Concern	N
Peregrine falcon (*F. p. anatum*)	Threatened	Y
Ivory gull	Special Concern	N
Ross' gull	Special Concern	N
Caspian tern	Not At Risk	N

[1] Note: Y = yes; N = no; H = Listed as hypothetical occurring in the region.